NICOLE-JEANNE SCHLEGEL

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Education

March 2011, Ph.D., Specialty: Climate Science, Department of Earth and Planetary Science, School of Letters and Sciences, University of California, Berkeley, California

May 2000, B.A., Major: Computer Science / Science of Earth Systems (concentration in Atmospheric Sciences) Minor: Concentration in French Area Studies, School of Arts and Sciences, Cornell University, Ithaca, NY

Research Experience

5/2011 – Present, Caltech Postdoctoral Scholar, NASA Jet Propulsion Laboratory, Pasadena, CA, advisor: Eric Larour (NASA JPL)

- *Ice Sheet System Model (ISSM) developer, enhancement and testing of ISSM (C/C++,Matlab platform)*
- *Research focus on sensitivities of ice sheets to external forcings/boundary conditions (atmosphere/ocean)*

9/2003 – 5/2011, Graduate Student Researcher/Instructor, Department of Earth and Planetary Science, School of Letters and Sciences, University of California, Berkeley, CA

- *Enhancement of the University of British Columbia three-dimensional thermo-mechanical ice sheet model to investigate the sensitivity of the Greenland Ice Sheet to modern day climate variability and projected future climatic trends (FORTRAN90/95,Matlab)*
- *Force Polar version of the NCAR/Penn State Mesoscale Model (PMM5) with various ice sheet topographies calculated from the ice sheet model (FORTRAN90/95,C/C++)*

5/2004 – 5/2011, Visiting Graduate Student Researcher, Climate Science Department, Earth Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, CA

- *Climate model simulation and analysis: Running of various climate models (NCAR/Penn State Mesoscale Model [MM5], Weather Research and Forecasting Model [WRF]) and analysis of output from multiple high-resolution Mesoscale simulations (C++,FORTRAN90/95,NetCDF,GRIB,Matlab)*
- *Statistical Climatic downscaling of AOGCM model output (i.e. PCM, GFDL, HadCM3, CCSM) with observational and reanalysis data (ECMWF, NCEP,PRISM)*
- *Development of algorithms to capture the historical and projected frequencies of synoptic scale patterns currently believed to drive California mesoscale weather events (eg. Santa Ana Winds, coastal fog)*

5/2002 – 8/2003, Team Lead for Training Simulation Program, National Air and Space Model (NASM) for the Joint Simulation (JSIMS) Project, Raytheon Company, Sudbury, MA

9/2000 – 8/2003, Software Engineer, National Air and Space Model (NASM) for the Joint Simulation (JSIMS) Project, Raytheon Company, Sudbury, MA

- *Software design, development, and testing for Air force portion of a US armed forces joint simulation for officer training (UML,OOC/C++)*

8/1999 – 9/2000, Member of Robotic Soccer (Robocup) Research and Development Team, Artificial Intelligence, Department of Mechanical Engineering, Cornell University, Ithaca, NY

- *Software design for robotic soccer team artificial intelligence development (C/C++, Java)*
- *Software code development for simulation games and robot artificial intelligence (C++, Matlab)*

6/1999 – 8/1999, Summer Institute Student Scholar, Land Data Assimilation Scheme (LDAS) Student Intern, NASA Goddard Space Flight Center, Greenbelt, MD

- *Scripting for automatic download and visualization of satellite data (UNIX shell)*
- *Developed real-time website visualization for validation of LDAS model's earth temperature prediction output (FORTRAN,GrADS)*
- *Web page modification and creation (HTML,Java)*

Teaching Experience

9/2004 – 5/2011, Graduate Student Instructor, Department of Earth and Planetary Science, School of Letters and Sciences, University of California, Berkeley, California

- *Run labs/discussion sections, hold office hours, run review sessions, maintain class web site, in collaboration with professors and other graduate student instructors: develop and grade assignments, exams, and class field trips, serve as substitute lecturer*

Courses taught:

- The Planet Earth (EPS 50)*: Introduction to earth science, Spring 2011 (head graduate student instructor for Chi-Yuen Wang) and Fall 2004*
- Introduction to Oceans (EPS 82)*: Fall 2005 and Fall 2007*
- The Planets (EPS 12)*: Introduction to the Solar System, Spring 2006*
- Freshman/Sophomore Seminar (EPS 39)*: Introductory field trip to the Northern California Sierras, Fall 2004 (Lead by Chi-Yuen Wang)*

1/1999 – 12/1999, Student Consultant for Introduction to Computer Science (CS 100), Department of Computer Science, School of Engineering, Cornell University, Ithaca, NY

- *Oversee computer laboratory and provide support for students working on coding assignment, grade assignments and exams*

8/1997 – 5/2000, Student Private Tutor, Athletic Department, Cornell University, Ithaca, NY

8/1997 – 5/2000, Student Grader, Department of Mathematics, School of Arts and Sciences, Cornell University, Ithaca, NY

- *Grade weekly assignments for and work with graduate student instructors for upper level undergraduate mathematics courses*

Awards

NASA Graduate Student Fellowships in Earth System Sciences 9/2005-9/2007

Scholastic Grant for Santa Ana Wind Research, Earth Sciences Division, Lawrence Berkeley National Laboratory, 7/2005

World Championship Robotic Soccer Competition, Robocup 2000, First Place, Melbourne, Australia, 9/2000

Scholastic Grant received from Cornell University Mechanical Engineering Department for Robocup Artificial Intelligence Research and Travel to Robocup Competition, Melbourne, Australia, 5/2000-9/2000

Award of Degree with Distinction in all Subjects, Cornell University, 5/2000

Publications

N-J. Schlegel, E Larour, H Seroussi, M. Morlighem, and J. E. Box, Decadal-scale sensitivity of northeast Greenland ice flow to errors in surface mass balance using ISSM, *J. Geophys. Res. - Earth Surface*, 118, doi: 10.1002/jgrf.20062.

Xu, P, Y. Huang, N. Miller, N. Schlegel, and P. Shen, 2012, Impacts of climate change on building heating and cooling energy patterns in California, *Energy*, v. 44, pp 792-804.

Jin, J., Miller, N.L., N.J. Schlegel, 2010, Sensitivity Study of Four Land Surface Schemes in the WRF Model, *Advances in Meteorology*, vol. 2010, Article ID 167436, doi:10.1155/2010/167436.

Hayhoe, K., VanDorn, J., Croley, T., Schlegal, N., Wuebbles, D., 2010, *Regional climate change projections for Chicago and the US Great Lakes*, Journal of Great Lakes Research, v. 36, i. 2, pp. 7 - 21

Xu, P., Y. Huang, N.L. Miller, N.J. Schlegel. 2009. *Effects of global climate change on building energy consumption and its implications on building energy codes and policy in California*, CEC-500-2009-006. Available from http://www.energy.ca.gov/publications/.

Miller, N.L., J. Jin, N.J. Schlegel, M.A. Snyder, T.O'Brien, L.C. Sloan, P.B. Duffy, H. Hidalgo, M. Kanamatsu, K. Yoshimura, and D.R. Cayan. 2009. *An analysis of simulated California climate using multiple dynamical and statistical techniques*. A Report to the CA Energy Commission as part of the CA Assessment Report. CEC-500-2009-017-D, 47 pp. Available from http://water.usgs.gov/nrp/.

Harmsen, E.W., N.L. Miller, N.J. Schlegel, and J.E. Gonzalez, 2009, Seasonal climate change impacts on evapotranspiration, precipitation deficit and crop yield in Puerto Rico, *Agricultural Water Management*, v. 96, i. 7

Schlegel, N.J. and Jason Box, 2008. *Coupling of ice sheet and climate models: the successes to date, challenges, and directions forward*, contributing article to: Climate Change and the Cryosphere: Snow, Water, Ice, and Permafrost in the Arctic (SWIPA): An Arctic Council 'Cryosphere Project' in Cooperation with IASC, CliC and IPY, Component 2: Climate Change and the Greenland Ice Sheet

Hayhoe, K. et al., 2007, *Climate Change and Chicago: Projections and Potential Impact*, Chicago Climate Action Plan, Chapter 2: Climate. Available from http://www.chicagoclimateaction.org (Contributing Author)

Miller, N.L. and N.J. Schlegel, 2006. *Climate change projected fire weather sensitivity: California Santa Ana wind occurrence*. Geophysical Research Letters. 33, L15711, doi:101029/2006GL25808.